GASTRO-INTESTINAL COMPLICATIONS ACCOMPANYING PULMONARY TUBERCULOSIS*

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Good food constitutes one of the main therapeutic measures in the treatment of pulmonary tuberculosis. This does not mean, as was at one time erroneously assumed, that a tuberculous patient should be overfed and crowded beyond his capacity with large quantities of milk, eggs and cereals in addition to his regular meals. It does mean that he should have a properly regulated diet, including milk and eggs, sufficient to bring his weight to normal and restore his bodily strength and energy. However, adequate feeding of a tuberculous patient is often a practical impossibility, due to the numerous gastric and intestinal conditions, organic and particularly functional, which result as a direct concomitant of his pulmonary disease.

These problems will be analyzed as:

Functional—Loss of appetite; disgust for certain kinds of foods or for all foods; vagaries of diet; distress after eating, i. e., gas; nausea and vomiting (intestinal toxemia); coughing during eating; abdominal pain (gastralgia—diaphragmatic pleurisy); result of over-eating; diarrhoea.

Treatment—Particularly the combating of anorexia and the control of increased peristalsis by the use of intravenous injections of 5 per cent calcium chloride.

Organic—Gastric or duodenal ulcer; colitis; appendicitis; intestinal tuberculosis (differential diagnosis).

In pulmonary tuberculosis, symptoms referable to the stomach or intestine are exceedingly common. Mohler and Funk in 1000 consecutive cases found 64.6 per cent had gastric symptoms; Hutchinson in 72 per cent; Janowski 35 per cent, and Landis 55.3 per cent. These percentages are mainly for functional disturbances because actual tuberculosis of the stomach is almost unknown, occurring only twice in 2000 autopsies performed at the Brompton Hospital, London. Pulmonary tuberculosis causes a definite downward progression in gastric motility and secretory function. Hyperacidity is rare. The gastric mucosa and glands may be impaired, thus causing gastric disorders. Undoubtedly, in pulmonary tuberculosis we have delayed digestion which may produce symptoms as the primary disease progresses. Pulmonary disease often has a gastric onset, and every patient complaining of prolonged anorexia or gastric distress should have a complete physical and roentgenological examination to ascertain if pulmonary tuberculosis is present.

Tuberculosis is unquestionably a disease dependent upon lowered resistance. To arrest it, resistance must be elevated, and unless the patient will eat this is unobtainable and our best methods of treatment futile. Child nutrition is being approached from the point of view of the child being an entity because his digestion differs from the adult. We may go further and assert that adult digestions differ one from the other and that each under-nourished adult is a separate entity. In feeding a tuberculous patient, particularly one who complains of loss of appetite, his particular psychology must be considered. What were his habits before he became ill? What are his idiosyncrasies and prejudices? We base all diets on the proper relation of carbohydrates to proteins, but must not this rate differ in different individuals according to occupation and temperament? Again, how great a role the nervous system must play in its relation to digestion! Prolonged indigestion causes loss of weight and strength and diminished resistance. A proper or effective blood circulation must play an important role also in digestion and the patient's desire for food. Nutrition from the cellular point of view is intimately bound up with the idea of a normal or abnormal increase or decrease in the digestive power of the individual cell. As the end products of gastric and intestinal digestion are transmitted to the cells of the body by the plasma it is manifest that metabolism is influenced by good or defective circulation. We are wont to accept "loss of appetite" in a tuberculous patient as a natural symptom of his disease produced by a general toxemia and treat it with tonics with forced feeding, the latter often causing vomiting or nausea. Loss of appetite is often due to toxemia, but is just as often due to temperamental peculiarities, nervous symptoms or defective circulation.

A worrysome functional disturbance often more difficult to combat than anorexia, is a "disgust for certain kinds or for all foods." Patients who formerly had been hearty eaters often complain that they can no longer eat meat because the odor of it kills their appetites. Others state that although they feel like eating, they know that if they took food they would vomit, although the food did not distress them.

Such patients continue to lose weight until they are taught to overcome these peculiarities. Vagaries of diet are met with only too often in handling tuberculous patients. Common examples are those who cannot drink milk nor eat soft-boiled eggs; who will discard a whole tray because sauce was poured over the meat; who will not eat chicken; or who can only eat one kind of cereal. In fact, instances of freakishness in eating common in the healthy individual can be multiplied manyfold in the chronically sick. Nor is the condition easy to combat, since in tuberculosis our aim is hypernutrition. The very articles of food most necessary for the latter are refused in a foolish and stubborn belief that the patient cannot tolerate them. Patients who receive narcotics often take violent dislikes to the most easily digested foods.

Nausea and vomiting are the most frequent gastric or intestinal symptoms. They may be due to high temperature or to intestinal toxemia, but more often to excessive coughing, swallowing of sputum, or the clinging of tenacious sputum to the pharynx, which causes gagging and vomiting.

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Swallowing of sputum plays an important role in the continuation and aggravation of disordered gastric function. It may best be combated by instructing the patient never to swallow his sputum. The drinking of a glass of hot water fifteen minutes before eating, particularly before breakfast, proves often most efficacious in loosening bits of tenacious sputum and counteracting the coughing and subsequent vomiting which often occurs after the first few mouthfuls of food. Pottenger explains nausea and vomiting as an expression of increased muscular tonus in the gastric walls through visceral reflexes. However we explain nausea and vomiting, it is an ever-present complication and often prevents the patient's upbuilding. Closely allied to nausea and vomiting is coughing during eating, which often induces the former. Many patients cough upon the slightest pharyngeal irritation—and the swallowing of food seems to particularly excite a pharyngeal reflex. Sometimes this coughing will not occur until the meal is completed, but whenever it occurs often expectoration and vomiting follow. If the vomiting occurs with every meal, nourishment of the patient naturally becomes a great problem. A small dose of Heroin or Codein fifteen minutes before meal time may be beneficial. Patients often develop a "habit" cough and exercise this particularly while eating. This cough can be controlled by teaching the patient to inspire when he feels the pharyngeal "tickle."

Abdominal pain is one of the most distressing symptoms seen in the course of pulmonary tuberculosis. Its causes are numerous. Certain articles of food may cause it, particularly milk. Acute epigastric pain suggestive of gastric ulcer may cease immediately after the removal of milk from the patient's dietary. A few days later the milk may be resumed without the patient feeling any distress. Eggs often have similar effect. Overeating is one of the frequent causes of epigastric pain. Excessive amounts of raw fruit also may cause violent abdominal pain. Increased peristalsis is a natural result of dietetic indiscretion—hence the necessity of making each patient a dietetic study and not feeding everyone alike or according to a fixed system. One patient may assimilate 3,500 calories daily—another may thrive and gain weight on 2,500. The greatest problem with which we have to deal is the patient himself. He believes the success of treatment depends upon cramming himself with food, particularly excessive amounts of milk and eggs, and if pain results he does not attribute it to overeating or wrong food, but to intestinal tuberculosis. It is often most difficult to convince him to the contrary.

Diaphragmatic pleurisy may cause abdominal pain, but treatment of pleurisy by aspirin and strapping will give relief. Pain in the region of the gall-bladder may suggest disease of this organ. Whereas the vast majority of all abdominal pain in the gastric or intestinal region is produced by temperamental idiosyncrasies or dietetic indiscretions, we must not forget that we may have organic causes such as gastric ulcer, appendicitis or intestinal tuberculosis. Appendicitis of tuberculous origin or otherwise is a condition which must always be kept in mind in acute abdominal pain.

Diarrhea, so frequently coincident with pain in the abdomen, is sometimes of organic origin, but more often it is due to dietary indiscretion. No combination of symptoms will so upset the patient's equilibrium and cause discouragement as diarrhea and pain. He has, of course, heard or read that these are cardinal symptoms of intestinal tuberculosis, and it often may take all one's tact to persuade him otherwise. To accomplish prompt relief of the condition is, of course, the best argument. When milk is the cause it should be stopped for one or more days. If it is due to intestinal toxemia, irritation of the gastric or intestinal mucosa or even a slight tuberculous ulceration, a 5 per cent solution of calcium chloride intravenously is useful. An initial dose of two cc. seems best. After four to five days, if no result is apparent, a dose of five cc. may be given and repeated weekly if required. Sometimes the immediate effect of the treatment is brilliant, the pain and diarrhea ceasing in twenty-four hours. This applies principally to cases of functional disturbances with little or no organic involvement. In one patient with marked intestinal tuberculosis accompanied by severe pain and diarrhea the symptoms disappeared within twenty-four hours after the injection. He eventually died, but for months previously he received considerable comfort from injections from one to three weeks apart. Calcium chloride very probably operates through inhibition of peristalsis, and of course its action is purely palliative. The author of the treatment maintains that relief is always obtained in the absence of excessive intestinal ulceration. Its value is great principally in cases of stubborn pain and diarrhea when definite cessation of these symptoms will convince the patient that his condition is not hopeless.

There is no more important problem than the determination of the status of a tuberculous patient with abdominal symptoms. Edward Archibald makes a plea for early recognition and surgical treatment of true tuberculous involvement of the intestine. He states "when a patient complains of pain in the mid or lower abdomen at irregular intervals during the day, but chiefly in the late forenoon or afternoon, these pains being crampy of stabbing, aggravated by food and relieved by fasting, felt only during a part of the day, then one must be very suspicious of tuberculosis. When he has loss of appetite—real distaste for food; when he has nausea at times; when he gives up one article of food after another; when he develops a slight fever which is not attributed to his lung condition, and if this persists over three or four weeks—then one may be almost sure of the diagnosis." Archibald is correct in urging an early diagnosis of true intestinal tuberculosis, because surgery offers a result in a percentage of these cases and temporary relief in the majority. I have seen the symptom complex detailed above as being pathognomic of intestinal tuberculosis disappear permanently under rest and

proper diet. In this event it was no doubt caused by functional disturbances or faulty diet.

In determining our diagnosis we should never forget that the tuberculous patient may develop the same abdominal conditions as the non-tuberculous patient, i. e., gastric or duodenal ulcer, gall-bladder disease, colitis or acute appendicitis. The differential diagnosis of these conditions from tuberculosis is not always easy—particularly as one hesitates to submit a patient with pulmonary involvement to an operation. We are often confronted with the problem of whether we are dealing with a diaphragmatic pleurisy or gall-bladder disease; whether an epigastric pain persisting is due to gas or an ulcer; whether a colitis is toxic, infectious or tuberculous; whether pain in the right lower abdominal quadrant is due to appendicitis or not. In the last named, blood examination will often clear the diagnosis except in the sub-acute forms. It is necessary to keep all these conditions in mind, when a patient with pulmonary tuberculosis develops abdominal symptoms, particularly since the latter may be independent of his tuberculous condition, which even more complicates the picture.

Fluoroscopy may be of some assistance in making a diagnosis in intestinal tuberculosis. Pirie, who did the roentgenological work for Archibald, states: "In a tuberculous subject with symptoms suggesting tuberculous caecum, if the caecum did not fill from four to twelve hours after the barium meal, when examined at intervals of about half an hour, then the want of filling confirms the diagnosis." In the few cases which I have fluoroscoped I have never been able to obtain positive evidence.

The decision as to whether the abdominal symptom complex is functional, due to diet, or whether it is organic, is important, because if the last named surgery becomes necessary. This paper cannot go into the surgery of intestinal tuberculosis. The results are occasionally permanent in the early mild ulcerative type of colitis, but in most cases they are palliative. It is my belief that the patient with pulmonary involvement should be given every possible chance with conservative methods before submitting him to a radical surgical procedure. Above all things, his pulmonary lesions must not be too far advanced if he is to submit to an operation for intestinal tuberculosis.

CONCLUSIONS

This brief paper does not attempt to present any new complications of tuberculosis. It is an analysis of certain practical problems which are worrysome and at times difficult of solution in the feeding of tubercluous patients.

The majority of gastric and intestinal symptoms in patients suffering from pulmonary tuberculosis are most probably due to toxemia, functional disturbances, dietary indiscretions or temperamental peculiarities.

Gastric tuberculosis per se is very rare, and intestinal tuberculosis, except in advanced cases, should only be diagnosed after most careful investigation and giving the patient the benefit of the doubt. Where definite intestinal tuberculosis has been absolutely verified, surgery may prove palliative.

It is most important to study the psychology of every patient—to recognize that adult digestions differ, and not attempt to feed patients by any fixed rule, but to carefully differentiate and individualize.

In abdominal pain and diarrhea calcium chloride 5 per cent injected intravenously is of considerable benefit.

The Problem of the Medical Parasite—The charge that the practice of medicine is not an exact science has been permitted to go unchallenged for so long that the statement has come to be generally accepted as true. Medicine is entitled to be called a science, and much of it exact science. The facts of anatomy are fixed and constant. Pathology is almost as constant as anatomy. Chemistry and physics are everywhere regarded as sciences. Bacteriology is as exact as botany, and botany is certainly entitled to rank with the other subdivisions of the great comprehensive science of biology. There is nothing in human experience that is entitled without reserve to be called exact—not even mathematics.

Most of the States have fairly good medical laws, but through most of them runs a common weakness— a section containing a list of "exemptions."

Under this heading will be found such medical parasites as have been legalized by indirect means. The problem of the medical parasite is peculiar to our own country. No other political subdivision of the civilized world gives legal sanction to the exploitation of its sick. One searches in vain through the medical laws of the nations of the earth sufficiently advanced to have medical laws, for any parallel to the desecration of medical law that prevails in our own United States of America. The composite list of the parasites found under the "exemptions" of the various States is a long one—and it is growing. The Legislatures of the different States are struggling valiantly to overtake the demand. The task seems well nigh hopeless, still there is, as yet, no sign of giving up the chase.

Laws that grant "limited licenses" to persons of limited qualifications are not laws in the interest of public safety. The "limited" applies only to the qualifications of the holder of the license. There is no limit to the character of the ailments that the "limited" license entitles its holder to attempt to treat. If the "limited license" were limited in the sense that diseases to which the specified limited treatment was unsuited could not be dealt with, some of the danger might be eliminated. As it is, some of the most pernicious of these "limited" practitioners treat in their own limited way diseases which are necessarily fatal unless treated by methods which by law are denied to the holder of said limited license. The law plainly says that certain methods of treatment are forbidden, but is silent on the vital point of what diseases must not be treated by the limited methods permitted the holder of the limited license. Withholding the proper treatment may cause the death of the patient just as surely as applying the wrong treatment. The limited practitioner not infrequently makes away with his patient by this indirect method. This way of killing people is legalized in many of the States—and Illinois is one of them.—(Illinois Medical Journal, June, 1922.)